

REMARKS

Favorable reconsideration and allowance of the subject application are respectfully requested. Claims 1-20 are pending in the present application, with claim 1 being independent.

Claim Rejections under 35 U.S.C. §102 and 35 U.S.C. § 103

The Examiner rejected claims 1, 2, 9, 10, 11 and 20 under 35 U.S.C. §102(b), as being anticipated by Camp (U.S. Patent No. 2,253,059). The Examiner alternatively rejected claims 1, 2, 9, 10, 11 and 20 under 35 U.S.C. § 103(a) as being obvious over Camp (U.S. Patent No. 2,253,059). Additionally, the Examiner rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Camp in view of Pilgrim (U.S. Patent No. 4,477,300). Claims 1, 2, 9, 10, 11, 13, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Camp in view of Wittbold et al. (U.S. Patent No. 6,494,609). Claims 3, 4, 5, 8, 14, 15, 16, and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over either one of Camp or Camp in view of Wittbold, and further in view of Amano et al. (U.S. Patent No. 5,246,163). Claims 5, 6, 7, 8, 16, 17, 18 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over either one of Camp or Camp in view of Wittbold, and further in view of Plemons et al. (U.S. Patent No. 3,343,818). Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over either one of Camp or Camp in view of Wittbold, and further in view of Stiling (U.S. Patent No. 4,176,972). Applicants respectfully traverse each of these rejections for at least the following reasons.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as complete detail as is contained in the claim. M.P.E.P. § 2131.

Independent claim 1 recites "discharging the slurry from said mixing container through an outlet onto a support, such that the slurry is in a turbulent state at the entrance of said outlet." The mixer outlet of the present invention clearly is the outlet which directs the slurry onto the paper support which is on the conveyor. Independent claim 1 further recites "inserting a setting accelerator into said slurry at or close to said outlet and said slurry's exit from the mixer such that the accelerator is mixed with the slurry in the slurry's turbulent state."

The outstanding Office Action alleges that "[t]he location of the pipe (39) in Camp is considered to be the entrance to the mixer outlet because the slurry must pass from the main mixing area to the area between the rings (26, 34) before it is discharged from the discharge port (37)." Applicants respectfully disagree.

The location of the pipe 39 in Camp clearly is not the entrance to the mixer outlet. Instead, as shown in FIGS. 2, 4, and 5, the mixer outlet of Camp is the discharge port 37. Camp clearly discloses that the mixer includes an annular ring 34 positioned a distance from the housing ring 26 and having a port 36 that is offset relative to the discharge port 37 so that the slurry makes an extra spiral passage around the housing outside of the ring 34 before being discharged from the discharge port 37 (see Camp at page 1, col. 2, lines 38-59). Thus, the location of the pipe 39 in Camp clearly is not the entrance to the mixer outlet. In Camp, the slurry must make an

extra spiral passage around the housing outside of the ring 34 before being discharged from the discharge port 37. Thus, the Camp reference clearly does not disclose at least "inserting a setting accelerator into said slurry at or close to said outlet and said slurry's exit from the mixer such that the accelerator is mixed with the slurry in the slurry's turbulent state" as recited in independent claim 1.

For at least the foregoing reasons, the Camp reference clearly does not disclose all of the features of independent claim 1. Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 102.

As set forth above, the Examiner alternatively rejected the claims under 35 U.S.C. § 103(a) as being obvious over Camp.

"Obviousness is a question of law based on underlying factual inquiries. [The Graham factual inquiries enunciated by the Court are as follows:] A. Determining the Scope and Content of the Prior Art [...] B. Ascertaining the Differences Between the Claimed Invention and the Prior Art [and] C. Resolving the Level of Ordinary Skill in the Art. [...] Once the Graham factual inquiries are resolved, Office personnel must determine whether the claimed invention would have been obvious to one of ordinary skill in the art [...] after consideration of all the facts. [...] 'Ascertaining the differences between the prior art and the claims at issue requires interpreting the claim language, and considering both the invention and the prior art references as a whole. [...] In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.'" (M.P.E.P. § 2141.02(I)).

As set forth above, independent claim 1 recites "discharging the slurry from said mixing container through an outlet onto a support, such that the slurry is in a turbulent state at the entrance of said outlet." The mixer outlet of the present invention clearly is the outlet which directs the slurry onto the paper support which is on the conveyor. Independent claim 1 further recites "inserting a setting accelerator into said slurry at or close to said outlet and said slurry's exit from the mixer such that the accelerator is mixed with the slurry in the slurry's turbulent state."

The present invention recognizes that it is extremely advantageous to introduce the accelerator right at the point of exit from the mixer onto the support. The present invention further recognizes that the accelerator needs efficient mixing in a way that other additives such as foam specifically do not. The present invention discloses that this particular area of the process apparatus provides a high level of agitation and turbulence. Such a high level of agitation and turbulence would be particularly undesirable for other additives such as foam which would break down if added at this point. See, e.g., specification at page 2, lines 30-31; page 3, lines 1-16; and page 8, lines 24-31.

The outstanding Office Action alleges that it would have been obvious to one of ordinary skill in the art at the time of invention to mix the accelerator into the slurry at the entrance to the outlet of Camp in order to ensure the reaction occurs on the paper cover sheet rather than in the mixing vessel. Applicants respectfully disagree.

In stark contrast to the claimed invention, the Camp reference is directed to a complicated arrangement of rings to avoid over agitation of a foam additive. Particularly, Camp discloses a complicated arrangement of rings 26, 34 into which a

stable foam additive is introduced into the slurry via pipe 38. The rings 26, 34 of Camp avoid prolonged mixing of the foam, which Camp states is undesirable. See Camp at page 1, col. 2, lines 54-57.

Applicants respectfully submit that one of ordinary skill in the art would not have been motivated to dispense with the rings of Camp so that the accelerator would be added directly at the outlet of the mixer where turbulence is the highest. As recognized by the present invention, it is the positioning of the accelerator inlet at the particular point in the process that provides for the most agitation. Therefore, Applicants respectfully submit that it is incorrect to assume that the same level of agitation would be provided in the areas the examiner consider to be the mixer outlet in Camp.

Moreover, in the present invention, the mixer outlet is clearly shown to be where the mixer directs the slurry on the support. In contrast, Applicants note that Camp is a particularly old citation (1941) and the technology has moved forward considerably since that time. The Camp reference's arrangement of rings is wholly directed to a system which is not relevant to the present invention, namely the positioning of three streams of slurry.

Furthermore, the present invention is directed to the use of a modern wallboard mixer whereby the slurry is directed straight onto the support paper through a flexible outlet. In contrast, Camp clearly discloses that the accelerator or retarder is introduced through pipe 39 "between the rings". See Camp at page 2, col. 2, lines 57-59. Applicants submit that the arrangement of Camp would be wholly undesirable because the area between the rings would not provide the high turbulence that is desirably

provided by the claimed invention (which is particularly turbulent close or near to the exit of the mixer outlet).

Applicants respectfully submit that one of ordinary skill in the art would not have considered Camp to be relevant to the present invention in view of both its age and the fact that it is directed to solving quite the opposite problem of the present invention – i.e. that of providing LESS agitation of the foam additive by the provision of additional rings rather than MORE agitation and turbulence which is required by the accelerator additive. Thus, the Camp reference clearly teaches away from the present invention at least in this regard.

For at least the foregoing reasons, the Camp reference does not disclose or suggest at least these features of independent claim 1. Applicants respectfully request withdrawal of this rejection.

As set forth above, the Examiner also rejected the claims under 35 U.S.C. § 103(a) as being obvious over Camp in view of Wittbold et al. Applicants submit that the Wittbold et al. clearly fails to make up for the deficiencies of the Camp reference.

The outstanding Office Action alleges that Wittbold et al. teaches that it would be obvious that the slurry is in a turbulent state and that the accelerator could be added at the entrance of the outlet. Applicants respectfully disagree.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. See M.P.E.P. § 2143.01(III)). "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." See M.P.E.P. § 2141.02(VI).

Wittbold et al. specifically discloses that when foam is the additive "it is uniformly mixed in the slurry but not excessively agitated to the extent that it is broken down." See Wittbold et al. at column 5, lines 35-45. In stark contrast, a level of excessive agitation is particularly desirable for an accelerator because the mixing requirements for an accelerator are very different from that of foam. Thus, Wittbold et al. would specifically teach away from introducing an additive (cf foam) so close to the mixer outlet because the foam undesirably would be introduced in a turbulent state.

Neither Wittbold et al. nor any of the other applied references provides any suggestion, or 'clear signpost', to the person of ordinary skill in the art to provide the arrangement of the claimed invention.

Moreover, as set forth in M.P.E.P. § 2141.02, "a patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the 'subject matter as a whole' which should always be considered in determining the obviousness of an invention under 35 U.S.C. § 103." In re Spinnoble, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969).

The present invention recognizes that it is extremely advantageous to introduce the accelerator right at the point of exit from the mixer onto the support. The present invention further recognizes that the accelerator needs efficient mixing in a way that other additives such as foam specifically do not. The present invention discloses that this particular area of the process apparatus provides a high level of agitation and turbulence. Such a high level of agitation and turbulence would be particularly undesirable for other additives such as foam which would break down if added at this

point. See, e.g., specification at page 2, lines 30-31; page 3, lines 1-16; and page 8, lines 24-31. Therefore, the positioning of the accelerator inlet near or at the outlet of the mixer slurry provides a high turbulent state that would not have been obvious over the applied references, either individually or in combination.

For at least the foregoing reasons, Camp and Wittbold et al., either individually or in combination, do not disclose or suggest at least these features of independent claim 1. Applicants respectfully request withdrawal of this rejection.

As set forth above, the Examiner also rejected the claims under 35 U.S.C. § 103(a) as being obvious over Camp, or Camp in view of Wittbold et al., in combination with additional cited references. Applicants submit that the Pilgrim, Amano et al., Plemons et al., and Stiling references clearly fail to make up for the deficiencies of Camp, or Camp in view of Wittbold et al. Indeed, the Pilgrim, Amano et al., Plemons et al., and Stiling references are not relied upon for these features.

For at least the foregoing reasons, the applied references, either individually or in combination, do not disclose or suggest all of the features of independent claim 1.

Dependent claims 2-20 are allowable at least by virtue of their dependency on independent claim 1. See MPEP § 2143.01. Moreover, these claims recite additional subject matter, which is not suggested by the documents taken either alone or in combination. Applicants respectfully request withdrawal of these rejections.

CONCLUSION


In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any

additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, at the telephone number listed below.

Deposit Account Authorization

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 50-3828 and please credit any excess fees to such deposit account.

Respectfully submitted,


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